DOCUMENT RESUME

ED 035 605 SP 003 52

AUTHOR Joyce, Bruce R.
TITLE A Guide to the Teacher-Innovator: A Program To Prepare Teachers.
INSTITUTION American Association of Colleges for Teacher Education, Washington, D.C.; ERIC Clearinghouse on Teacher Education, Washington, D.C.
SPONS AGENCY Office of Education (DHEW), Washington, D.C. Bureau of Research.
PUB DATE 69
CONTRACT OEC-0-8-080490-3706(010)
NOTE 49p.

EDRS PRICE EDRS Price MF-$0.25 HC-$2.55
DESCRIPTORS *Elementary School Teachers, *Individualized Instruction, Inservice Teacher Education, Laboratory Schools, *Models, Preservice Education, Sensitivity Training, *Teacher Education, *Teaching Experience
IDENTIFIERS Specifications for Elementary Teacher Education

ABSTRACT

The Teacher-Innovator model from Teachers College, Columbia University, trains the teacher for four roles: institution-builder, interactive teacher, innovator, and scholar. Teachers acquire an understanding of these roles during preservice and inservice experiences in four methodologies: inquiry and feedback groups--democratically organized groups of students who administer the program to themselves under faculty counseling; differential training--a model providing the faculty with ways of individualizing instruction; laboratory school--an inquiry school in which teaching and learning are studied as well as carried on; and a contract laboratory--a "real" school for direct contact with children. An example of the interrelationships among the four roles and methodologies is found in the contact laboratory. The trainee moves through six phases--from "experiencing the school as an unpaid teacher aide during the first four to eight weeks of the program; through tutoring, designing an individualized learning unit, working in an inquiry school, and operating an educational program for children (after school, summers, or weekends); and into internship, which specifies a two-thirds teaching position and proximity to other members of the trainee's feedback group. The model also anticipates technological support systems. (See ED 034 076 for a readers' guide to the nine funded models.) (LP)

Brief Title:

Guide to
Teachers College
Columbia University
Teacher Education Model

Joyce

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

ED035605

A GUIDE TO THE TEACHER-INNOVATOR: A PROGRAM TO PREPARE TEACHERS

Bruce R. Joyce

Published by
ERIC Clearinghouse on Teacher Education
Number One Dupont Circle, N.W.
Washington, D.C. February 1970

Clearinghouse sponsors: American Association of Colleges for Teacher Education (fiscal agent); National Commission on Teacher Education and Professional Standards, National Education Association (NEA); and Association for Student Teaching, a national affiliate of the NEA.

The following Guide is one of the nine which appears in the publication A Reader's Guide to the Nine Models for Preparing Elementary Teachers. The Guide is available free in limited quantity from the ERIC Clearinghouse on Teacher Education; for $4.00 from American Association of Colleges for Teacher Education, One Dupont Circle, Washington, D.C. 20036; and for $1.25 in microfiche and $15.90 in hard copy from the ERIC Document Reproduction Service (EDRS), 4936 Fairmont Ave., Bethesda, Md. 20014. The order number at EDRS is ED 034 076.

The Clearinghouse is publishing each of the nine guides separately as well as collectively for the convenience of those readers interested in a specific elementary teacher education model. The above individual Guide also is available free in limited quantity from the Clearinghouse and for $0.25 in microfiche and $2.90 in hard copy from EDRS. An abstract of the above Teachers College model will appear in the May 1970 Research in Education.

SP003523

SP 003 523

Introduction

On October 16, 1967, the U.S. Office of Education issued a request for the development of proposals on educational specifications for comprehensive undergraduate and inservice teacher education programs for elementary teachers. (The term elementary teacher included preschool teachers and teachers through grade 8.)

These proposals were for the design phase (phase I) of an intended three-phase project. By January 1, 1968, 80 proposals had been received. On March 1, 1968, the Bureau of Research awarded nine contracts to design conceptual models for programs for the training of prekindergarten and elementary school teachers, for the preservice as well as inservice components. These models were completed October 31, 1968.

Reports on phase I have been made under the following titles: A Model for the Preparation of Elementary School Teachers (Florida State University), G. Wesley Sowards, project manager; Behavioral Science Elementary Teacher Education Program (Michigan State University), W. Robert Houston, project director; A Competency-Based, Field-Centered Systems Approach to Elementary Education (Northwest Regional Educational Laboratory), H. Del Schalock and James R. Hale, editors; Specifications for a Comprehensive Undergraduate and Inservice Teacher Education Program for Elementary Teachers (Syracuse University), William Benjamin and others, authors; The Teacher-Innovator: A Program To Prepare Teachers (Teachers College, Columbia University), Bruce R. Joyce, principal author.

Also, Georgia Educational Model Specifications for the Preparation of Elementary Teachers (The University of Georgia), Charles E. Johnson, Gilbert F. Shearron, and A. John Stauffer, directors; Educational Specifications for a Comprehensive Elementary Teacher Education Program (The University of Toledo), George E. Dickson, director; A Model of Teacher Training for the Individualization of Instruction (University of Pittsburgh), Horton C. Southworth, director; and Model Elementary Teacher Education Program (University of Massachusetts), Dwight Allen, principal investigator, and James M. Cooper, project director.

In phase II, several institutions are studying the feasibility of developing, implementing, and operating a model program based upon specifications in phase I. In the third phase, the U.S. Office of Education hopes to be able to support implementation of some of the model proposals for restructuring teacher education.

Since the models cover almost 6,000 pages devoted to detailed specifications of behavioral objectives, materials, treatments, evaluation of specific elements of the programs, and the like, the ERIC Clearinghouse on Teacher Education, on April 15-16, 1969, sponsored in collaboration with the American Association of Colleges for Teacher Education (AACTE) which acts as its fiscal agent, a writers' conference in which key personnel involved in developing the models wrote guides to their specific programs.

A second-day of verbal interaction followed, at which time the writers discussed their personal reactions to all of the models and past, present, and future implications for teacher education. The panelists wanted to make it clear that in their discussion the models were being described at but one point on a continuum. They called the models catalytic agents which have generated a great deal of discussion, interaction, and continuing change. At this conference they said it was important for them to explore the range of alternative interpretations of issues such as, "What are behavioral objectives? What is a model? What does it mean to personalize? To individualize?" They said that some kind of projection needed to be made about what remains to be done--either by resolving issues, or if they are resolved, to act upon them. This whole exercise [the writers' conference] will have made a major contribution to teacher education if it focuses on the issues at the center of this whole models effort and helps to extend the models, they said.

This guide to the models should assist those who are interested in learning about or implementing them. The entire collection of models is available from the ERIC system in either hard copy or microfiche and from the Government Printing Office (GPO) in a honeycomb binding. The ERIC ordering address is: EDRS, The National Cash Register Co., 4936 Fairmont Avenue, Bethesda, Md. 20014. The GPO address is: The Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

The reports must be ordered by number. Any request without order numbers will be returned. Some of the reports listed do not have ERIC order numbers. These reports may not be ordered until the listing appears in Research in Education, the monthly abstract journal of ERIC.

The reports are available at the following prices:

Report By:	GPO Reprint Order No.	Price	ED No.	ERIC Hard Copy	Micro-fiche
Syracuse Univ.	FS 5.258:58016	$4.50	--- ---	------	-----
Volume I	----------	----	026 301	$14.85	$1.25
Volume II	----------	----	026 302	13.55	1.25
Univ. of Pittsburgh	FS 5.258:58017	2.50	025 495	10.60	1.00
Florida State Univ.	----------	----	--- ---	-----	----
Volume I	FS 5.258:58018	2.00	027 283	8.70	.75
Volume II	Not available	----	030 631	7.40	.75
Univ. of Georgia	FS 5.258:58019	3.50	025 491	14.85	1.25
Summary	----------	----	025 492	1.50	.25
Northwest Regional Educational Laboratory	FS 5.258:58020	6.50	--- ---	----	----
Overview and Specifications			026 305	7.65	.75

Report By:	Order No. Price	ED No.	ERIC Hard Copy	Micro-fiche
Appendix A:	Taxonomy of Learner Outcome	026 306	.55	.25
B:	Conceptual Model for Teaching Elementary Math	026 307	1.70	.25
C:	Content Model for Teaching Elementary Math	026 308	1.70	.25
D:	Sample Task Analysis and Behavioral Objectives	026 309	..70	.25
E:	General Adaptive Strategies	026 310	1.25	.25
F:	Interpersonal Competencies	026 311	.40	.25
G:	Basic Training Model for ComField Practicum	026 312	.45	.25
H:	Sample Task Analysis: Behavioral Objectives for ComField Laboratory	026 313	.65	.25
I:	Experimental Model for Preparing To Develop Behavioral Objectives	026 314	4.50	.50
J:	Experimental Model To Enable Instructional Managers To Demonstrate Interaction Competency	026 315	1.40	.25
K:	Trial Form of an Instrument for Evaluating Instructional Managers in the Practicum	026 316	.45	.25
L:	A Sequence for the Practicum	026 317	.60	.25
M:	Research Utilization and Problem Solving	026 318	3.20	.50
N:	Implementation of Rups System in a Total School District	026 319	2.20	.25
O:	The Human Relations School	026 320	1.05	.25
P:	Categorical Breakdown of Interpersonal Area	026 321	.30	.25
Q:	Educational Leaders Laboratory	026 322	.30	.25
R:	A Basic Communication Skill for Improving Interpersonal Relationships	026 323	.75	.25
S:	Broad Curricular Planning for the ComField Model Teacher Education Program	026 324	.85	.25
T:	Personalizing Teacher Education	026 325	.55	.25
U:	Self-Concept and Teaching	026 326	.70	.25
V:	Charting the Decision Making Structure of an Organization	026 327	.70	.25
W:	Cost Analysis in Teacher Education Programs	026 328	.80	.25

Report By:	GPO Reprint Order No.	Price	ED No.	ERIC Hard Copy	Micro-fiche
X: ComField Information Management System			026 329	.80	.25
Y: The Integrated Communications Experiment (ICE) Summary			026 330	.75	.25
Z: Classes of Measures Used in Behavioral Sciences, Nature of Data Thac Derive from Them, and Comments as to the Advantages and Disadvantages of Each			026 331	.40	.25
Teachers College, Columbia Univ.	FS 5.258:58021	4.50	027 284	26.95	2.00
Univ. of Massachusetts	FS 5.258:58022	4.50	025 490	26.25	2.25
Univ. of Toledo	FS 5.258:58023	7.00	--- ---	-----	----
Volume I	----------	----	025 457	12.80	1.00
Volume II	----------	----	025 456	34.85	3.00
Michigan State Univ.	----------	----	--- ---	-----	----
Volume I	FS 5.258:58024	5.00	027 285	31.35	2.50
Volume II	FS 5.258:58024	5.50	027 286	37.95	3.00
Volume III	FS 5.258:58024	5.00	027 287	29.65	2.25

Also available (or to be available soon) are the following related reports: 1. Nine Proposals for Elementary Teacher Education, A Description of Plans To Design Exemplary Training Programs by Nicholas A. Fattu of Indiana University. This document is a summary of the nine originally proposed programs which were funded in phase I of the project for preparing elementary teachers. Available through ERIC: ED 018 677, Price: $6.55 for hard copy; $0.75 for microfiche. 2. Analysis and Evaluation of Plans for Comprehensive Elementary Teacher Education Models by William E. Engbretson of Governors State University. This document is an analysis of the 71 proposed, but unfunded models of phase I. Available through ERIC: ED 027 268, Price: $12.60, hard copy; $1.00, microfiche.

3. A self-initiated critique of the Syracuse University model program, Specifications for a Comprehensive Undergraduate and Inservice Teacher Education Program for Elementary Teachers. ED 027 276, Price: $7.20 for hard copy; $0.75 for microfiche. 4. Some Comments on Nine Elementary Teacher Education Models by the System Development Corporation. This paper is adapted from remarks made at an American Educational Research Association conference in November 1968. Available through ERIC: ED 029 813, Price $0.75 for hard copy; $0.25 for microfiche. 5. Twenty-page summaries of the nine reports are available, free of charge, from: Elementary Teacher Education Project, Division of Elementary and Secondary Research, National Center for Educational Research and Development, U.S. Office of Education, 400 Maryland Avenue, S.W., Washington, D.C. 20202.

6. A Bibliography of References Used in the Preparation of Nine Model Teacher Education Programs by James F. Schaefer Jr. (Washington, D.C.: ERIC Clearinghouse on Teacher Education and the Bureau of

Research, U.S. Office of Education, 1969). ED 031 460, Price: $4.95, hard copy; $0.50, microfiche. 7. Analytic Summaries of Specifications for Model Teacher Education Programs, 8. A Short Summary of 10 Model Teacher Education Programs, and 9. Techniques for Developing an Elementary Teacher Education Model are three publications which were issued by the System Development Corporation in July 1969.

It is appropriate to express appreciation to the Clearinghouse staff for its dedication and hard work in completing this manuscript: Dr. Joost Yff, assistant director, and Mrs. Dorothy Mueller, program associate, whose advice and guidance were invaluable; Mrs. Lorraine Poliakoff and Mrs. Suzanne Martin, information analysts, who provided the index to this volume; and to the clerical staff of the Clearinghouse, especially Mrs. Vera Juarez, whose steady assistance made this publication possible. Appreciation also should be expressed to AACTE for its role in the conference and in this Guide, and, of course, to the writers of the guides for their full cooperation both during and after the conference.

The Clearinghouse on Teacher Education is pleased to present this guide to the nine models in the hope that it will stimulate extensive study of ways to improve school personnel preparation and thereby the educational opportunities for America's children and youth.

Kaliopee Lanzillotti, Publications Coordinator

Joel Burdin, Director

February 1970

About ERIC

The Educational Resources Information Center (ERIC) forms a nationwide information system established by the U.S. Office of Education, designed to serve and advance American education. Its basic objective is to provide ideas and information on significant current documents (e.g., research reports, articles, theoretical papers, program descriptions, published or unpublished conference papers, newsletters, and curriculum guides or studies) and to publicize the availability of such documents. Central ERIC is the term given to the function of the U.S. Office of Education, which provides policy, coordination, training, funds, and general services to the 19 clearinghouses in the information system. Each clearinghouse focuses its activities on a separate subject-matter area; acquires, evaluates, abstracts, and indexes documents; processes many significant documents into the ERIC system; and publicizes available ideas and information to the education community through its own publications, those of Central ERIC, and other educational media.

Teacher Education and ERIC

The ERIC Clearinghouse on Teacher Education, established June 20, 1968, is sponsored by three professional groups--the American Association of Colleges for Teacher Education (fiscal agent); the National Commission on Teacher Education and Professional Standards of the National Education Association (NEA); and the Association for Student Teaching, a national affiliate of NEA. It is located at One Dupont Circle, Washington, D.C. 20036.

Scope of Clearinghouse Activities

Users of this guide are encouraged to send to the ERIC Clearinghouse on Teacher Education documents related to its scope, a statement of which follows:

> *The Clearinghouse is responsible for research reports, curriculum descriptions, theoretical papers, addresses, and other materials relative to the preparation of school personnel (nursery, elementary, secondary, and supporting school personnel); the preparation and development of teacher educators; and the profession of teaching. The scope includes recruitment, selection, lifelong personal and professional development, and teacher placement as well as the profession of teaching. While the major interest of the Clearinghouse is professional preparation and practice in America, it also is interested in international aspects of the field.*

The scope also guides the Clearinghouse's Advisory and Policy Council and staff in decisionmaking relative to the commissioning of monographs, bibliographies, and directories. The scope is a flexible guide in the idea and information needs of those concerned with the pre- and inservice preparation of school personnel and the profession of teaching.

How To Use This Guide

Each guide has this general outline: overview, program goals and rationale, selection procedures, professional preservice component, relationship of professional component to academic component, inservice component, faculty requirements and staff utilization, evaluation component, program management, and summary. The Teachers College guide, which was not written at the conference, is the only one with a different outline.

In the Government Printing Office (GPO) edition of the models, some of the pages were numbered differently from the original reports which were processed into the ERIC system. For the readers' convenience, the footnotes to the guides include the page references to both the GPO and ED (ERIC) editions. If the page references in the footnotes were the same for both editions, only one set of page numbers is given.

"ED" or order numbers for the models appear along with the prices and other information in the introduction. Ordering information about other references in the ERIC collection would appear in the bibliography to each guide.

Table of Contents

PAGE

OVERVIEW. 1
The Problem of Developing a Performance Model. 1
Complexity. 1
Diversity in Educational Views. 2
Inadequate Descriptions of Teaching 2
The Teacher as Experimenter. 3
The Nature of Our Performance Model. 3
Creativity and Control over Reality. 4
The Four Roles of the Teacher-Innovator. 4
The Institution-Builder 4
The Interactive Teacher 5
The Innovator 5
The Scholar 5
The Performance Model as a Goal. 6

THE STRUCTURE OF THE PROGRAM. 6

THE GENERAL METHODOLOGIES OF THE PROGRAM. 6
Inquiry Groups 9
The Differential Training Model 10
Inquiry School 11
The Contact Laboratory 11
The General Methodology Summarized 13

THE FOUR BASIC COMPONENTS: GENERAL STRUCTURE 13
Phase One--Experiencing the School 13
Phase Two--Tutorial and Small-Group Teaching 14
Phase Three--Unit Experimentation. 15
Phase Four--Experience in Curriculum Modes: The Inquiry School. . 15
Phase Five--Operating an Educational Program 15
Phase Six--Internship. 16
The Total Pattern. 16

THE FOUR BASIC COMPONENTS: THE MEANS WITHIN THEM 16
The Institution-Builder Component. 16
The Processes 21
Behavioral Objectives 22
The Rationale of the Component. 24
The Means of the Component. 25
Administration of the Component 28
Evaluation and Feedback 29
The Interactive Teacher Component. 29
The Processes 30
The Maneuvers of Teaching 32
The Nine Models of Teaching 34
The Behavioral Objectives of the Subcomponent 35
The Rationale of the Subcomponent 37
The Means of the Subcomponent 38

PAGE

The Administration of the Subcomponent. 41
Provision for Feedback and Differential Training. 43
Evaluation. 43
The Teacher-Innovator and the Teacher-Scholar Components 43

THE RELATION OF THE PROGRAM TO PROGRAMS OF GENERAL EDUCATION. 44

BIBLIOGRAPHY. 46

Teachers College, Columbia University

OVERVIEW

When attempting to make a complete reconceptualization of a major educational area, such as teacher education, one cannot begin with the assurance that he can imagine what the eventual components of the educational program will be. In the area of teacher education, it has always been assumed that there would be a kind of experience which could be called student teaching or internship or observation and participation in the public schools. Yet, a number of contemporary educational methodologies can be used to replace some of these experiences which have always been given. We are able to simulate classroom students and even communities to such an extent that it is now possible to carry on many aspects of training under the controlled conditions of the simulator rather than in the random conditions of the school situation. When one does this, one begins to rethink the patterns of laboratory experiences, and one may or may not come up with student teaching or its equivalent.

Hence, it was assumed in the development of The Teacher-Innovator that the program components were to be generated afresh with each group of model builders as each developed its conceptions of the teaching process and the means for preparing teachers who would be competent in that process. This document is structured to provide the reader with insight into the kind of thinking that went into developing the Teachers College model. The headings and subheadings that are used are derived to serve that purpose.

The Problem of Developing a Performance Model

The first task in the application of systems thinking to the development of an educational program is the creation of a conception of the goal. In this case, the goal is to be a teacher or a person who functions in institutions which are devoted to the education of children. The goal conception for an educational process model needs to be stated in terms of performance (the behavior of the individual in relation to the domains critical to his function). In this case then, the performance model needs to be stated in terms of kinds of teachers' behaviors or the kinds of behaviors that enable the teacher to function as an educator.

The development of a performance model of the teacher is extremely difficult because teaching is highly complex, it is not yet being studied very effectively, and there are many conflicting and diffuse ideas about what an effective teacher is. Let us look at these problems in turn:

Complexity. To build a training program for a functionary whose job is not very complex, one can frequently arrive at the specifications of the job and hence at the performances required of the functionary by

doing a task analysis of what is required to get the job done. For example, the training of a technician who will perform simple functions differs from training teachers in many, many ways. The parameters of the technician's job are quite narrow. The effects of his behavior are quickly apparent so it is very easy to tell whether he is responding to any given component within the training program. Also, one wants him trained according to a fixed criterion--for although one would not object if such a technician thought for himself, one does not really want him deviating very much from the established procedures unless he is quite certain that the ersatz procedure will substitute completely for the specified one. Unlike the technician, the teacher works in a situation requiring him to perform many complex behaviors, the results of which are not easy to assess, and we want him to be able to solve problems effectively rather than to apply formulas which might not discriminate between his clients.

Diversity in Educational Views. Further complicating the job of describing the effective teacher is the fact that we have not reached agreement about the kinds of educational procedures that should be employed in any given situation. We are not in a state of total ignorance about teacher education or about teaching, but neither do we have final solutions to educational problems. Consequently, we do not have widespread agreement about the performances required of the teacher. In education, there are many people who maintain that teaching is largely an art and that the practice of education is unique to the personality and style of each individual teacher. This conception is especially widespread among practitioners themselves, but is also very common among teacher educators. Symptomatic of this is the rejection in many quarters of attempts to make behavioral analyses of teaching. Many practitioners and educational professors not only believe that existing systems for analyzing teaching behaviorally are inadequate, but actually recoil from the notion that we might be able to make such analyses reliably. The upshot of this is that there are many practitioners and teacher educators who are resistant to the idea of developing performance models, for describable performance is incompatible with an artistic conception of teaching.

This poses a number of critical problems for the model builders in the present effort, for nearly all of us accepted the assumption that we could to some extent describe teaching in behavioral terms and apply behavioral training procedures to produce a practitioner. We can expect the field to resist this effort, and we can expect to be in the minority in the education community as we carry on this type of work.

Inadequate Descriptions of Teaching. Even those of us who believe that we are able to describe the behavior of the teacher in positivistic language have to face the fact that we have not adequately done so as yet. Even the resurgence in the study of teaching in recent years has not yet resulted in a sufficiently scientific description of the behavior of the teacher that we are able to derive a performance model out of the analyses of the present functionary. This is complicated by the fact that even if we had described the present functionary adequately,

there are few people outside of the profession itself who would accept the present performance of teachers as the basis of the performance of teachers-to-be. There is widespread public dissatisfaction with teaching as it is now carried on, and this dissatisfaction complicates our attempt to build performance models from the study of the existing functionary.

However, there are bases on which we can begin to build hypothetical performance models of teachers. There are, in fact, quite a number of well developed stances toward teaching and learning. Cybernetic psychology for one has well developed positions about learning from which one can derive theoretical models of potentially effective teacher behavior. Therapeutic models, such as those of Rogers, provide similar sources. Developmental psychology, both those schools which concentrate on cognitive development and those which concentrate on personality and affective development, have resulted in positions from which we can come to substantial positions about what a teacher might do to get a given effect. Similarly, analyses of the society and analyses of subject disciplines have resulted in theories of learning and instruction. There are also many developed approaches to curriculum and instruction which suggest the relationship between educational environments and anticipated outcomes on the learners. There is also a wealth of educational technologies to which the teacher can relate and which can provide a healthy basis for his experimentation.

The Teacher as Experimenter

Not only because we do not have final solutions to our educational problems and because our educational institutions and technologies are in flux, but also because there is a base of alternative theories on which scholarship in education can presently be built, we are in a position to make the education of the teacher a preparation for experimentation in education. If we cannot provide the teacher with lasting solutions to educational problems, we are nonetheless in a position to teach him how to approach what he does in such a way that he tests and otherwise studies educational strategies. We can try to help teaching to become collegial scholarship or the process of teaching and learning. By linking to learning theory conceptions of society, conceptions of social institutions, and analyses of subject matter, the teacher can generate and test hypothetical conceptions of education.

It is our choice to build a performance model which is not based so much on a description of the teacher as a functionary as it is on the conception of a teacher as an innovator-scholar--a person who, working with his colleagues, develops and tests solutions to educational problems.

The Nature of Our Performance Model

The performance model for The Teacher-Innovator was developed as a result of several years of study and argument about the intellectual equipment and clinical competencies needed by a teacher to create a va-

riety of education environments and to study their effects on children. Since there has been no long-term empirical study of these competencies, their selection had to be a matter of judgment.

The process of selection began with identifying several domains in which a teacher functions when he attempts to generate and test various combinations of educational ends and means.

In a sense, our primary task was to develop a broad performance model of the professional educator, a structure of teaching that would enable the creation of the ends and means of the teacher education program. The basis of our rationale stems from the idea that professional performance can be described in terms of control over certain areas of reality that are essential to develop creative roles, rather than the ability to fill already defined teaching roles. The selected areas of reality would enable the teacher to work as a creator. This conception avoids the problem of developing performance models based on studies of existing functionaries or our limited visions with respect to functionaries for today's schools. The rationale presented herewith represents a stage in the collegiate thinking of faculty members at Teachers College who have independently developed models of teacher education: Bruce Joyce, Arthur Foshay, Gerald Weinstein, Margaret Lindsey, and Robert Schaefer. While Joyce's conceptions have structured the writing of this document, the other conceptions have influenced it heavily.

Creativity and Control over Reality

In order to develop performance models for teacher education--to create a model of a professional who will grow in capacity, create new options for children, and contribute to his profession, it first is necessary to identify the areas of reality that he needs to control in order to define and solve educational problems. This is a very different conception of professional control from one which is centered on the training of the present-day functionary. Conceiving professional functioning as the creative manipulation of reality puts future growth in a central position.

The second stage in creating a program of teacher education is the development of curricular systems which will enable teacher education students to achieve control of the essential areas of reality.

The Four Roles of the Teacher-Innovator

We identified four roles which seem essential for the teacher who is an innovator and a scholar. Within each role, certain kinds of control appear necessary.

Institution-Builder (shaper of the school). In this role the teacher-innovator works with other faculty members, community representatives, stu-

dents, and administrators to design and make real complete educational programs and organizational structures. The shaper of the school controls strategies for studying and designing curricula systems; analyzing and creating effective social systems in the school; and assembling and employing technical support systems which facilitate education.

Interactive Teacher. The most familiar teaching role occurs during contact with children. At this point the teacher needs strategies for making instructional decisions which are tailored to the characteristics and needs of the students. He can work with groups of children to build effective democratic structures through which they can conduct their education. He controls a wide variety of teaching strategies and wide range of technological assists to education. He is a student of individual differences, and he has the interpersonal sensitivity to touch closely the minds and emotions of the students and to modify his own behavior as a teacher in response. He is able to bring structure to chaotic situations without being punitive. The teacher does this in company with his colleagues. He rarely works alone partly because he needs their colleagueship and the shared analysis of teaching and learning that is a continuous part of their professional life. With them he controls techniques for designing continual small experiments of teaching and learning.

Innovator. To be an innovator rather than a bureaucratic functionary, a teacher needs to combine personal creativity with ability to work with others to build educational settings in which innovation rather than imitation is the norm. He has techniques for analyzing the social structure of the school, especially how it inhibits or facilitates creative behavior.

Scholar. As Robert Schaefer puts it, we cannot "wind the teacher up like an old victrola and hope that he will play sweet cerebral music forever." Continuous scholarship renews him and adds to his knowledge about education. He controls techniques for studying the processes of interactive teaching and theories of learning. He specializes in one discipline until he knows the nature and the modes of inquiry of that discipline. Equally important, he knows how to engage in research that relates that discipline to the lives of young children. He controls structures for studying the school and for studying teaching and learning, so he can design and carry out educational experiments. He masters a range of teaching strategies derived from different views of learning, and more important than that controls techniques for developing and testing new ones.[1]

---

[1] Bruce R. Joyce, The Teacher-Innovator: A Program To Prepare Teachers (Washington, D.C.: Government Printing Office, 1969), pp. 16-17; ED: p. 15.

The Performance Model as a Goal

Once the four teacher roles had been identified, there were two possible courses open to us as the model was developed. One was to explicate fully the performance model examining each domain and determining the detailed sets of behaviors that make up complete performance in the domain. An alternative route was to settle for a behavioral, yet general definition of the functions within each domain and to proceed to the identification of the means for achieving competence in the roles. The latter was chosen because of the short duration of the project and the desirability to make a significant step toward the rationale for the various means required in a program designed with a complex performance model as the objective. Consequently, the program developed such that the specification of behavioral objectives and the development of means proceeded simultaneously with only as much specificity in objectives being achieved as was necessary to keep the developmental activity going forward. At the conclusion of the project, therefore, much remained to be done in the complete specification of objectives and in the engineering work required to match the sets of detailed objectives closely with the means that were developed.

THE STRUCTURE OF THE PROGRAM

There are two aspects to the structure of the program. One is a set of general methodologies which are employed to weld the student body into a community of scholar-teachers, to provide for individual differences in personality development, to enable students to set their own pace in learning, and to provide a laboratory in which students can practice creating and testing educational environments.[2] The second aspect of the program is four basic components, each one derived from the fundamental roles of teaching and designed to yield control over those aspects of reality required by the roles. Each component has a series of subcomponents, and in addition each one has its own rationale and own curricular or teaching strategy.[3]

THE GENERAL METHODOLOGIES OF THE PROGRAM

There are four main features of the general methodology of the program. One, there is provision for democratically organized (inquiry) groups of students to administer the program to themselves. These groups take a large share of the responsibility for reshaping their education and control the pace with which they proceed through the components and subcomponents. Faculty members serve as counselors and technical advisers and leaders of dialogue

---

[2]For full description, see Ibid., GPO: pp. 45-156; ED: pp. 42-146.

[3]For full description, see Ibid., GPO: pp. 157-466; ED: pp. 147-436.

about education, but the students themselves study the objectives of the components and subcomponents, study the means, and administer the technical training to themselves.[4]

Second is the application of a differential training model which prescribes different education environments for students of varying conceptual levels. The differential training model provides ways that faculty members can tailor the program to the characteristics of the students.[5]

The third general feature is a laboratory school program taken from Robert Schaefer's concept of the school as a center of inquiry.[6] This school is not designed simply to be an exemplary school in terms of its program, but to be exemplary in the way the educational process is studied by the teachers and in the collegial relationship which they bear toward one another as they seek to define educational purposes and means and try to understand themselves and their students. The teacher candidates in the teacher-innovator program need experience in an environment which is unlike the normal school environment in that teaching and learning are studied as well as carried on. The school as a center of inquiry is the element in the program designed to permit this experience to occur.[7]

The fourth general element is the contact laboratory or the provisions for the teacher candidates to have direct contact with children and schools. Although the four basic components in the teacher education program include many experiences in simulation laboratories and with small groups of children, the contact laboratory ensures that the teacher candidates will study the school as it is and will learn to practice in the real world of the schools (albeit as innovators in them).

The four general structural characteristics of the program intersect with the four basic components as represented in figure 1.

If one were to fill in all 16 cells in figure 1 with examples of the interaction between the four basic program elements and the four basic components, one would find that all cells would be filled with many examples. Each of the general elements is important in the execution of each of the basic components. For example, the inquiry groups study institution-building together, work in the inquiry school together, studying the characteristics of that institution, and then during the contact lab-

---

[4] Ibid., GPO: pp. 51-56; ED: pp. 46-51.

[5] For full description, see Ibid., GPO: pp. 52-84; ED: pp. 52-77.

[6] Robert Schaefer, The School as a Center of Inquiry (New York: Harper, 1967).

[7] See Joyce, op. cit., GPO: pp. 85-146; ED: pp. 78-137, for rationale of this school.

		General elements			
		Inquiry groups (democratic method)	Differential training model (faculty administered)	Inquiry school (laboratory school)	Contact lab. (direct experience with children)
Four basic components	Institution-builder				
	Interactive teacher				
	Innovator				
	Teacher-scholar				

FIGURE 1

RELATIONSHIP BETWEEN GENERAL STRUCTURAL ELEMENTS AND FOUR BASIC COMPONENTS

oratory, they develop institutional plans and test them out while they work with real children under less controlled conditions. The relationship among the general structural elements and the four components will be seen in many places as we proceed to describe the program. The following illustrates the relation of the inquiry groups to the general components:[8]

Inquiry Groups

The basic teaching strategy in the program is cooperative inquiry. The teacher candidates are organized into democratic "inquiry groups" of about 12 students. These miniature democracies are assisted by faculty counselors who help them to educate themselves. The substantive components have all been designed so that they are virtually self-administering. In no activity is a faculty member more than a seminar leader. The structure of each component is explained to the inquiry group which then, with the help of the faculty, negotiates its way through the activties.

Within each inquiry group the candidates are organized into feedback teams. Each feedback team consists of three or four teacher-candidates who coach each other when they are learning skills to help analyze one another's teaching and to carry out small educational experiments throughout the program. These two units, the inquiry group and the "feedback team," are kept together as much as possible throughout the teacher education program so that the members of the group share the commitment to experimentation that is established at the beginning of the program. These units support one another as they stretch into new activities and experiments.

In addition, each inquiry group elects representatives to steering committees of faculty, administration, and candidates who are responsible for administering, evaluating, and revising the program components. An overall steering committee discusses policy matters and can call meetings of all the candidates and faculty when it is desirable.

The cooperative inquiry method, combined with the democratic organization of the program, accomplishes three purposes:

1. It teaches the teacher candidates how to organize an educational program that operates as a democracy. Hopefully, there will be reasonable transfer to their teaching situation.
2. It involves the teacher candidates in continuous experimental activity which is supported by a group of their peers. This group eventually can function as a reference group, anchoring the experimental norms for each member.

---

[8] Ibid., GPO: pp. 18-22; EP: pp. 16-20.

3. It involves the teacher candidates in the shaping of their own educational activities which should be a highly motivating activity. There are good odds that the students will become welded into a tight community, an experience which should have personal value as well as increasing the effectiveness of professional education.

The Differential Training Model

The second structural element is a model for individualizing instruction which is based on the work of David E. Hunt of the Ontario Institute for Studies in Education. Hunt has taken the position that an optimal educational environment can be prescribed for individual teacher candidates which function in two ways: first, it will increase the learning of ideas and skills; second, it will increase the personal flexibility of the teacher candidate. Hunt's model provides for modification of educational procedures to take into account four characteristics of the teacher candidate: his competency level, feedback preference, value orientation, and cognitive structure. All of these characteristics are related to achievement by the teacher candidate, and cognitive orientation is related to personal flexibility.

The components are organized so that pacing by competency level is accomplished in the skill areas through procedures that the candidates administer directly to themselves. For example, a candidate needs to practice a teaching strategy only until he has mastered it, and the means for determining mastery are built into the component in which teaching strategies are the central concern.

Other aspects of the differential model are carried out by action of the faculty member as he works with the inquiry group. Basically, he modifies his role in order to change the educational environment that is presented to the candidates. With respect to feedback preference, for example, the faculty member modifies his behavior so that candidates who prefer feedback from authority figures receive much from him or other faculty, whereas candidates who prefer peer feedback receive less authority feedback and greater measures of peer judgment.

With respect to cognitive orientation, the faculty member modifies the amount of structure and task complexity that is presented to the teacher-candidate. For example, candidates of low cognitive complexity operate best in environments which are fairly well structured and in which task complexity is not too great. Highly complex individuals, on the other hand, operate best under low structure and high task complexity. Hunt's theory suggests, and he presents much research to bear him out, that when there is a substantial mismatch between cognitive complexity and the environment, the individual does not achieve as well and is unlikely to grow in flexibility. An optimal environment for growth in flexibility is one in which the amount of structure is somewhat less and the amount of task complexity is somewhat greater than what is optimal for achievement. In other

words, a slight, controlled mismatch has the effect of pulling the individual toward everincreasing cognitive complexity and flexibility.

Inquiry School

After substantial training, preferably in small-group teaching in their own "school," the teacher candidates are attached to teams in the inquiry school in order to carry out fairly lengthy experiments.

The Contact Laboratory

The fourth general structural element in the program is the contact laboratory, which refers to provisions for the teacher candidates to be in contact with schools or children. They are placed in public schools as interns, preferably in assignments where three of them cover the normal duties of two teachers, so that the three can work together continuing to carry out experiments. (It probably should be noted at this point that we take the view that all teaching is an experiment and that the only honest approach to teaching is to treat each educational activity as the testing of a hypothesis about teaching and learning.)

After an initial period of apprenticeship in the normal public school situation, the contact laboratory does not use any experiences which are analogous to those which usually characterize student teaching. Contact is provided, however, in order to give the teacher candidates the opportunity to study schools, teachers, and children, and also so that they can master a wide repertoire of teaching strategies, practice making curricular and instructional decisions, and engage in educational experimentation.

At Teachers College much contact was provided by organizing the candidates to offer educational programs to neighborhood children. There is a great demand for remedial programs in all school subjects, and for enrichment programs as well. Both after-school programs and summer programs are possible. By offering such programs, the candidates serve the neighborhood and create a contact laboratory for themselves in which experimental teaching can be the norm.

The contact laboratory is best described as six phases, each of which serves the four basic components in particular ways, often serving two or more components simultaneously. See table 1.

The contact laboratory begins in the first weeks of the program and continues, ideally, into the first year of paid teaching. Only the initial phase includes apprentice teaching of the type most familiar in traditional student teaching programs. The remainder of the experience is in experimental teaching in which the candidates are mastering a variety of strategies and carrying out teaching units which they develop with research designs.

TABLE I

SIX PHASES OF CONTACT LABORATORY

Phase	Type	Purpose
One	Experiencing the school	A four-to eight-week apprenticeship to a public school
Two	Small-group and tutorial teaching (preferably in candidate-operated program)	10 to 20 weeks of experimenting with teaching strategies
Three	Unit-experimentation in inquiry school	Group experiments in teaching units taking four to eight weeks
Four	Experience in curriculum modes in inquiry school	Observation-participation experience in a variety of ways of teaching
Five	Carrying on an educational program	Inquiry groups develop and carry on a candidate-operated school program
Six	Internship	Paid teaching, preferably in teams derived from inquiry groups

The General Methodology Summarized

The program, then, is operated as a democracy with small self-regulating units of students monitoring their own progress and administering the program to themselves with the assistance of faculty counselors. The faculty counselor modifies his role to provide an optimal educational environment for each individual according to the differential training model. The contact laboratory is organized to provide the teacher-candidates with opportunities for study, microteaching, and experimentation rather than to socialize them to the school as it presently exists. The contact laboratory stretches over a long period of time in order to insure the development of realistic skills, but it is carefully designed to discourage the teacher-candidates from believing that realism means accepting the school as it is today and keeping it the same.

THE FOUR BASIC COMPONENTS: GENERAL STRUCTURE

Let us turn now to the general organization of the program components and examine them in their relationships to each other, in their specific rationales, and specific methodologies. In this section it is not possible to go into extensive detail, and the Final Report of the project will be quoted and referred to continuously in this section of the document.

It is convenient to see the four basic components as they relate to the contact laboratory. The teaching strategies subcomponent of the interactive teacher component will be used along with the other components in this explanation.

The contact laboratory, which begins in the first weeks of the program, continues, ideally, into the first year of paid teaching. Only the initial phase includes apprentice teaching of the type most familiar in traditional student teaching programs. The remainder of the experience is in experimental teaching in which the candidates are mastering a variety of strategies and carrying out teaching units which they develop with research designs.

Phase One--Experiencing the School

This phase consists of four to eight weeks of experience as an unpaid teacher aide in a public school classroom. All members of each inquiry group are placed as aides in the same school, and they work in pairs or threes attached to individual classrooms or teaching teams, depending on the staff utilization pattern of the school.

This phase should begin as soon as possible after the teacher candidate enters the program. It serves two purposes. First, it brings the teacher candidates into contact with children, schools, and teachers. Previously, candidates have known the school, but from the perspective of students, rather than teachers. Now, they look at children, and at the school with the eyes of teachers-in-training. They begin to know the people they will try to teach, and they take the measure of the job.

They develop a ground of common experience, also, which can be drawn on throughout the program.

The second purpose is to involve the teacher candidates in the analysis of the school as an institution and the classroom as a social system. These analyses form a critical part of the innovator component. The experience of the school is essential if the teachers are to understand the bureaucratic processes of the school and the alienation that is implicit in learning bureaucratic roles. (See the description of the component for details.) Similarly, the analysis of the social system of the school and classroom is part of the early activity of the institution-builder component and is drawn on in the teaching strategies subcomponent, to help candidates learn to study what Louis Smith calls the microethnology of the classroom. "Experiencing the school" should last at least four weeks, but if the program is spread over enough time, more time, up to six or eight weeks of half-time experience, is desirable.

Phase Two--Tutorial and Small-Group Teaching

This second phase lasts 10 to 20 weeks. It consists of experience with one to five children for short periods of time, several times a week. The experience can be developed in any one of several ways. Teacher candidates can work in a candidate-operated educational program. This might be during after-school hours or on weekends. They could offer "remedial" or "enrichment" programs. Another possibility is assignment as tutors or small-group teachers in a normal public school or the inquiry school. A third possibility is participation in an after-hours/weekend program offered through the inquiry school. Fourth, in an urban program, is participation in a community school, such as a "store front" school.

The second phase of the contact laboratory most prominently serves the teaching strategies subcomponent, for it provides the setting in which candidates practice and study teaching strategies, apply methods learned in flexibility training and structure training, and develop and test out teaching strategies drawn from the disciplines.

Also, however, the tutorial phase serves the innovator component by providing both inquiry and feedback groups with the opportunity for experimentation and the analysis of problems in implementing new educational forms. It also provides the setting for the "creativity training" subcomponent.

In addition, the tutorial phase serves the teacher-scholar component in three ways. It enables students to practice techniques for studying teaching and learning, to replicate and originate research in the teaching of the disciplines.

In order to serve these multiple demands adequately, the tutorial program must meet these criteria:

1. It must provide much opportunity for independent teaching. It may serve a school program, but the teacher-candidates need the opportunity to make and carry out educational decisions.
2. It must be conducted where teacher-candidates can observe each other teach.
3. It must permit television and audio recording of teaching episodes.

Phase Three--Unit Experimentation

In this phase each inquiry group tailors a learning unit (four to six weeks) to a group of children and carries out the unit as an educational experiment. All members participate. There are at least three ways of providing this experience. It can be done in the context of a candidate-run educational program. Or, it can be arranged in a normal public school. Or, it can be provided in the inquiry school.

It requires simply that each inquiry group be given, for a period of one to two months, responsibility for teaching from about 10 to 30 children for from four to eight weeks for from one to two hours a day. (The upper limits are most desirable in each case.)

Phase 3 serves all four basic components. It provides opportunity for an authentic institution-builder activity. Second, it involves the development and testing of teaching strategies. Third, it furthers the innovator component by giving the candidates a reasonable chance to carry out an innovation of their own making. Last, it requires study of the disciplines, teaching and learning, and the institution, and so serves the teacher-scholar component.

Phase Four--Experience in Curriculum Modes: The Inquiry School

In the fourth phase candidates are attached to the inquiry school where they study several types of education. They may serve as aides if the experience has sufficient duration. The school serves all four basic components by providing an authentic example of institution-building and teaching where scholarship is practiced and innovation is a byword. This phase would not be difficult to provide were it not for the necessity of developing the school.

Phase Five--Operating an Educational Program

Next, the teacher candidates need to practice what they have learned and solidify their bond to each other as innovators. If they have been already operating a remedial or enrichment program, this phase is not necessary. Otherwise, the candidates should plan and carry out a summer school or an after-school or weekend program for children.

At Teachers College, during the summer of 1968, this experience took the form of a summer school for neighborhood children, judged disadvan-

taged by the local public schools, whose personnel identified the children and helped recruit them. The teacher candidates planned, executed, and studied the entire education program.

Phase Six--Internship

The first year of teaching should be regarded as an internship. Where possible, teacher candidates should be placed so that three occupy two normal teaching positions, and they should be placed so that feedback groups can continue their experimental activity.

Ideally, the candidates are placed as teams. Either inter-disciplinary or specialist teams are possible, depending on local preferences and opportunities. The most promising candidates might be placed in the inquiry school, attached to teams engaging in curriculum research.

The Total Pattern

The six phases represent types of activities which might be combined in several ways. A small masters-level program might combine all contact laboratory experience within an inquiry school whose components enable all the necessary activities to be carried out.

The six phases here represent an ideal situation under normal conditions where the inquiry school, normal public schools, and the need for aides and interns, are all present.

Table 2 relates the four basic components to the sequence of contact laboratory experiences; tables 3 and 4 represent the phases of the four components by phases of the contact laboratory.

THE FOUR BASIC COMPONENTS: THE MEANS WITHIN THEM

Let us look more specifically now at the means within the four basic components.

The Institution-Builder Component[9]

Teacher education programs have generally put much more energy into preparing the teacher to work directly with children than they have to preparing him for his roles as an institution-builder or simply responsible faculty member. In contrast, we place as much emphasis on the teacher as a developer of curriculum, an organizer of technological systems, and a designer of the social system within the school as we do to his functions as an instructional decisionmaker and interactive teacher.

---

[9] *Ibid.*, GPO: pp. 295-306; ED: pp. 278-89.

TABLE II

CONTACT LABORATORY AND BASIC COMPONENTS

Phase	Genre	Activities	Components served
One	Experiencing the school	Teacher aide: analysis of school and classroom	Institution-builder, Innovator, Teacher-scholar
Two	Tutorial-small group teaching	Experimenting with teaching strategies	Institution-builder, Interactive teacher (teaching strategies subcomponent), Teacher-scholar, Innovator
Three	Unit study	Experimenting with unit teaching	Interactive teacher (teaching strategies subcomponent), Institution-builder, Teacher-scholar, Innovator
Four	Experience in inquiry school teams	Studying school as an inquiry center	Innovator, Institution-builder
Five	Operating own school program	Experimenting and studying teaching and learning	All components
Six	Internship	(As in five)	All components

TABLE III

PHASES OF COMPONENTS BY PHASES OF CONTACT LABORATORY[10]

THE INTERACTIVE TEACHER COMPONENT

Contact laboratory-phase	Subcomponents of interactive teaching component			
	Instructional decisionmaking	Teaching strategies	Flexibility training	Structuring the classroom
I Experiencing the school	"The Teaching Game"		Study "coping" behavior	Study microethnography of classroom
II Tutorial-small group teaching	Tasks in the simulated school	Study and master maneuvers	Communication tasks	Master structuring maneuvers
	Study specialty related strategies	Study and master strategies	Practice in tutorial	Experiment with teaching strategies
	Practice in tutorial situations	Create and test strategies	Situations	Diagnose and apply
III Unit experiment	Apply to unit	Apply to unit	Apply to unit	Apply to unit
IV Inquiry school	Analyze strategies of inquiry teams	Analyze strategies of inquiry teams	Analyze teachers	Analyze structuring in inquiry teams
V Operating remedial-enrichment school	Apply strategies	Apply and test strategies	Apply and test self (continue training as appropriate)	Apply and test self (continue training as appropriate)
VI Internship	Apply strategies	Create and test strategies	Apply and test self (continue training as appropriate)	Apply and test self (continue training as appropriate)

[10] Ibid., GPO: pp. 152-155; ED: pp. 143-46.

TABLE IV

PHASES OF COMPONENTS BY PHASES OF CONTACT LABORATORY[11]

INSTITUTION-BUILDER, INNOVATOR, SCHOLAR COMPONENTS

Contact laboratory-phase	Components			
	Institution-builder	Innovator	Teacher-scholar	
			Study of teaching	Study of learner
I	Analyze social, technical, and curricular systems of school	Experience and analyze bureaucratic structure		
II	Tasks in simulated school	Analyze bureaucratic as nonbureaucratic behavior	Study four conceptual systems	Study developmental theories
III	Study curricular specialty-alternative curricular systems	Develop experiments in reference group	Study own teaching	Apply to students
IV	Develop and test unit	Develop experiments in reference group	Study own teaching	Apply to students
V	Study strategies of inquiry school	Reference group establishes ties to inquiry school faculty		Study in inquiry school
VI	Plan and carry out remedial-enrichment school	Reference group plans and carries out remedial-enrichment school		Carry out experiments in R-E school
	Apply strategies in teams	Reference group members placed in teams		With team members, continue study

[11] Ibid.

The justification is, of course, that education depends greatly on institutional character. The teacher does not work in a vacuum nor do the children learn simply by interacting with the teacher. The teacher teaches within an institutional context that affects whether he will have close colleagues, what talents they will bring to him, and what kind of relationship they will have.

The character of the school largely determines what type of technical support systems will be available, what kinds of inservice training, what cooperation he will have from the other school faculty in dealing with common problems, what curricular structure he will work within, and a host of other things. If the reader needs this point underscored, he might turn to the description of the "School as the Center of Inquiry" (chapter 8) and compare the institutional possibilities for education in that kind of institution with those that are ordinarily found on the public school scene.

The child, too, is enormously affected by the institution and not only through the effects that the institutional structure has on his teachers. Schools have social systems and in some of them the social systems work against the educational purposes of the school.[12] (Peer pressures, for example, affect student preferences for activities.) Hollingshead and many others have conducted depth studies of schools which make it fairly clear that the average school's social structure reflects the social structure of the community at large, a happenstance that can work for good or ill. Whereas in some communities the school is a place of serious and lively dialogue on the nature of the society, in other schools the status system of the society operates, and some students receive better treatment than others because of the social position of their parents.

Schools vary, also, in the vigor of their social climate. In some schools the curriculums are relevant and live, and the teachers have enthusiastic agreement about what they are trying to accomplish. In others, the curriculums seem mechanical, and the teachers teach alone. The physical setting and logistical arrangements also affect the students. In some schools there is great support by materials and auxiliary personnel. In these schools the learners have many options for developing themselves: they can read more widely, show themselves more films, perform more scientific explorations, teach themselves through self-instructional courses, and so on. In other schools the technological support systems function less well.

The school as an institution, then, is an enormously important education force. By giving so much prominence to institution-shaping competence in this program, we manifest operationally our belief that the institution-shaping functions of the teacher are as important as anything else that he does. Hence, the inclusion of the component, is, we believe, the most extensive preparation of its kind that has ever been designed into a teacher education program.

---

[12] James Coleman, The Adolescent Society (Glencoe: The Free Press, 1961), describes this phenomenon.

There are those who will say, "But will the teacher have the opportunity to use his institution-shaping ability, considering the way schools are run today?" While acknowledging the difficulty, we insist that institution-building is an essential for teaching, for learning, and for the overall redevelopment of the school in our society. A teacher-innovator who innovates only within the four walls of one classroom would probably be a wonderful person, his effectiveness would not be as great as if he participated actively also in the creation of a proper milieu for his students. It is possible, in fact, that changes confined to the one classroom may actually work against the efforts of many of the other teachers.

The Processes. The processes involved in shaping a school have been defined by Joyce in the book, Alternative Models for Elementary Education.[13] These include, first, the process of developing organizations of community leaders, educators, students, school administrators, and persons whose children will be in the schools. Such an organization constitutes what Joyce calls the responsible parties. These are the people who are entrusted with designing the educational program and modifying it as time goes on. The second process is that of selecting the mission of the school or the distinct purposes that it will have. In order to participate in this process, the teacher needs to be well acquainted with varieties of approaches for developing educational programs. He needs to be knowledgeable about theoreticians and practical men who have designed educational missions of various kinds. He needs to know, for example, about A. S. Neill's school, Summerhill, about the Bank Street School, the academic mission as Bruner has described it, the desires of community groups today engaged in the redevelopment of education.

The third major process in shaping the school is the development of the means of education. We can define these as three: curricular and instructional systems, technological support systems, and the social system or community of the school. In order to develop these, the teacher needs to have an acquaintance with alternative patterns of curriculum and instruction, with varieties of technological support systems and ways that they can be organized to support education, and with the dynamics of the social system of a school and how it can be developed.

The last process is the development of the organizational plan of the school. To do this adequately, the teacher needs to know about alternative systems for organization of teachers and students so that the educational environment will be stable and yet responsible to the needs of individuals and the spontaneous events of the world. Since Joyce has described the strategies for developing teams of responsible parties, for approaching the tasks of identifying the missions of the school, for building their curricular, social, and technological systems, and for developing organizational plans that are compatible with missions and means, it is not necessary to detail these processes here. They will be described somewhat in the course of developing the particular specifications of the component especially the behavioral objectives, but the full analysis requires the reader to turn to the books, Alternative Models for

---

[13]Bruce R. Joyce, Alternative Models for Elementary Education (Boston: Blaisdell, 1968).

Elementary Education and The Structure of Teaching.[14]

Behavioral Objectives. The behavioral objectives of the component are extremely complex, for the shaping of the school requires knowledge and skills in many areas. Large general objectives are stated with specific examples for clarity. This way vagueness and the chaos of a large number of different objectives can be avoided. The objectives in some cases are closely correlated with some of the interactive teaching subcomponents. The objectives are sequential only to a moderate extent, and the sequencing is largely in terms of a general progression from theoretical learning toward practice in simulated school settings and then to actual practice in institution-building. These do not represent discreet levels of attainment.

The First Objective: Knowledge of major theoretical positions on the shaping of the school. This includes knowledge of the theoretical work and research on the institutional problems of innovating in education.[15] It also includes knowledge of the major contemporary reformers such as A. S. Neill, Herbert Thelen, Jerome Bruner, John Holt, Robert Anderson, John Goodlad, and others who have within the last few years attempted to develop new institutional plans for education and knowledge of a reasonable sample of historically important positions, such as those of Plato, Comenius, Locke, and Dewey. In addition the teacher needs acquaintance with case studies of attempts to build educational institutions self-consciously, including some contemporary examples such as Novar School, the Horace Mann-Lincoln School, the Valley Winds School, the Laboratory School at University of Chicago, and others.[16]

The Second Objective: Knowledge of procedures for developing organizations of community members, educationists, and students to develop educational patterns and carry them out. The teacher needs to be familiar with reports such as the decentralization report of the Ford Foundation on the New York City Schools, and with case studies and general positions on the developing of community agencies with participatory government boards. Alternative Models for Elementary Education and The Structure of Teaching provide guides to these procedures.

The Third Objective: The skill to organize participatory groups to develop educational components. This includes the ability to organize a steering committee and carry it through the planning stages so that a component of education is actually organized. This is the operational aspect of the second objective.

The Fourth Objective: Knowledge of the alternative missions of the school which have been suggested in the theoretical literature or developed in practice. This involves an understanding of the fundamental

---

[14] See entire volume, Joyce, Ibid.; and Bruce R. Joyce and Berj Harootunian, The Structure of Teaching (Chicago: Science Research Associates, 1967), chapters 2 and 4.

[15] See Matthew B. Miles, editor, Innovation in Education (New York: Teachers College Press, Teachers College, Columbia University, 1964), for information in this area.

[16] Joyce and Harootunian, op. cit., chapter 4.

theoretical positions from which educational missions are derived. For example, the psychoanalytically oriented theorists tend to favor missions oriented toward the individual and his development into an integrated and functional self. Academic scholars tend to favor missions which emphasize academic learning in nature, and social reformers or socially concerned people such as Dewey, tend to be concerned that the social functions of the school supply a plentiful number of effective citizens. This objective includes an acquaintance with the major conceptual systems for studying the learner and making judgments about his intellectual, social, and emotional development, and includes the knowledge of a general theoretical position on learning and the general strategies which have been developed for organizing curricular systems. Within one curriculum area the teacher needs a thorough knowledge of current leading curricular and instructional systems. (When the means of this component are discussed, we will illustrate the attainment of this competence through the social studies, but that is simply for brevity and convenience.) Obviously, it should be true of specialist teachers in mathematics, science, social science, language, reading, and in social development. An example of a specific objective is: "Knowledge of and ability to implement the major approaches to curriculum and instruction in the social studies."[17]

The Fifth Objective: Knowledge of strategies for tailoring an educational system so that it fits the needs of specific communities and learners. This includes the ability to analyze the educational needs of communities and learners and to develop curricular and instructional strategies which are calculated to fill those needs. The Structure of Teaching and Alternative Models for Elementary Education have definitions and guides to the literature.

The Sixth Objective: Knowledge of alternative ways of organizing the technological support systems of schools. This includes a knowledge of contemporary technological assists to human behavior, conceptions of library design and utilization, and the theory of support systems. The teacher needs, for example, to know how to operate the individually prescribed intruction program developed at the University of Pittsburgh. He needs to know how dial-access retrieval systems function, and how a library can be organized to provide random access by students to books, original documents, films, film strips, tape recordings, multimedia courses children can administer to themselves, and so on. The teacher knows how to use television tape recorders for storing and using lectures, the use of television feedback to analyze group behavior, etc.

The candidate should develop a high level of skill in the administration of at least one technical support system.

---

[17] See, for example, Joyce, op. cit., GPO: pp. 307-16; ED: pp. 290-99.

The Seventh Objective: The teacher should have knowledge of the theoretical and research literature that pertains to the development of the social system of the school and should apply a strategy for building the social system. Specifically, he should have a knowledge of reports such as the Teachers College Report on the Washington, D.C., school system, other publications such as James Coleman's Adolescent Society, August Hollingshead's Elmtown's Youth, Willard Waller's The Sociology of Teaching, L. M. Smith and W. Geoffrey's Complexities of the Urban Classroom and L. M. Smith and P. Keith's Social-Psychological Aspects of School Building Design.

In addition the candidate should possess analytic tools for looking at the social system of the school and should know the major theoretical positions with respect to the development of social systems. For example, he should be acquainted with G. C. Homans' publication The Human Group and the work of John and Elaine Cumming on Milieu Therapy. Guides to this literature are provided in The Structure of Teaching and Alternative Models for Elementary Education.

Also, he should be able to work with teachers and students to develop at least one aspect of the social system of the school. If he is a foreign language teacher, he might demonstrate that he can organize students and other faculty to operate the language laboratory support system so that it will provide prescribed types of service to the students and teachers. If he is a science teacher, he might work with students and faculty to set up a self-instructional science laboratory or the equivalent. In other words, he should be able to define aspects of the social system and bring them into being.

The Rationale of the Component. One of the great difficulties in interesting teachers and teacher candidates in institution-building is the tradition in education that teachers do not play important roles (in the average case) in the development of the school. Teachers have generally been hired for specific teaching positions, and their duties have been oriented toward a specific group of children. In many situations teachers have felt powerless to influence the overall shape of the school. Despite attempts by theoreticians of administration and supervision to bring about different practices in the schools, there is no question that the teachers were frequently correct about being powerless. The teacher candidate has observed enough schools and teachers that he usually enters teacher education with no expectation that his duties will be at the institutional level. Therefore, he frequently does not even see why he should study alternative patterns of curricular organization even within his subject area. The teacher-to-be often wants to study interactive teaching rather than look at curriculum from grades 1 to 12 or more. He tends to be willing to accept the placement of the courses into various grades and then to develop his technological competence within the given universe. To challenge this set is difficult, and the rationale of this component has been developed with considerable attention to the problem of demonstrating to the young teacher that he can play an important institutional role. By involving him from a very early point in his educational career with institution-shaping tasks, he will see the usefulness in interactive teaching of the institution-building competencies.

The devices have been planned to build motivation for institution-building. The general democratic teaching strategy of the teacher education program, involving candidates as it does in the governance of this program, the cooperative inquiry method within each component and the inclusion of the candidates in the operation of the technical systems that facilitate their learning, accustom the candidates to institutional decisionmaking roles and should help them see the feasibility of such involvement.

Second, each inquiry group knows from an early point in the program that it is going to have responsibility for the enrichment--remedial school or for a section thereof. Our experience in the Teachers College, Columbia, program during 1967-1968 was that as soon as teacher candidates knew that they were going to develop a summer school of their own for neighborhood children, many of those who had previously rejected institution-building activities eagerly embraced curriculum planning roles and worked enthusiastically to develop community organizations and technical support systems. Evidently, the knowledge of the assignment that was to come was highly motivating.

The third tactic is to involve the candidates from the beginning of the component in realistic decisionmaking in simulated settings. They make curricula and instructional decisions for a Harlem neighborhood, a New England town with a typical spread of socioeconomic backgrounds and community problems, and an English town. They have available to them information on more than 50 aspects of over 14 youngsters who serve as the "student body" of the simulated school and complete case studies of the three communities. The curricular and instructional making tasks that they undertake in this simulated school are lively and realistic--designed to illustrate the importance of institutional planning as well as how to go about it.

In general, the component begins with exercises in the simulated school. (These are coordinated with activities from the instructional decisionmaking subcomponent which also uses the simulated school.) These activities involve decisionmaking so that the teacher has to deal with different combinations of learners, different types of teaching tasks, various curricular organizational patterns, and different communities. The work in the simulated school leads to the study of strategies of curriculum and instruction which is combined with work on teaching strategies in the interactive teaching component. Next, the candidates study curricular and instructional patterns in their area of specialty, so that they will develop competence to bring a substantive area to institutional development.

From that point, the teachers try to apply the strategies they have learned. They have an assignment in the school as the center of inquiry. They develop and carry out experimental units. They operate the remedial and enrichment school.

The Means of the Component. The specific means of the component will be described sequentially in terms of phases, bearing in mind that the entire program is designed to involve the teacher candidates in institution-building.

Phase One: The first phase of activity takes place in the simulated school, as is described in chapter 10-A of the Final Report. The simulation consists of a great deal of information about three communities. One is Spanish Harlem, one is a composite town in New England which is called Prestonport, for convenience, and the third is an English town named Banbury. The information deals with most aspects of social, political, and economic life in the three communities. These sets of information on the three require candidates to take into account the characteristics of the community. For example, they can be asked to prepare a social studies curriculum for the Spanish Harlem community, then for the New England community, and then for the English community. The differences in living circumstances and cultural heritage should enable the trainees to explore many ways in which community characteristics can be capitalized on in the building of a curriculum.

The second part of the simulated setting is a set of 14 data storage and retrieval systems containing information on children. The 14 learners, thus simulated through information, constitute the student population of the simulated school. By altering curriculum tasks with reference to the learners, it is possible to induce the teacher candidates to come to grips with the ways that learner characteristics can be accommodated in curriculum construction and to explore the kinds of complications that develop when particular combinations of learner characteristics occur together. For example, tasks can be given that require curriculum-making for different combinations of children. Similarly, data can be presented so that the candidate has to cope progressively with various types of learner characteristics.

The component begins with the rationalization of the component to the inquiry group, the introduction to the simulated school, and the presentation of a problem task which requires institution-shaping activity. During the first tasks it will become apparent to the trainees that they need some more substantive information for making decisions. They simply do not know how to create an educational institution. From this point the activities alternate between seminar sessions on institution-building strategies and activities in the simulated school. The seminars are built entirely around readings and materials which are designed to acquaint students with the strategies for approaching the institution-making tasks.

Alternative Models for Elementary Education is the first book to be read. It identifies positions of educational reform and provides ways of looking at the development of participatory government within a school, alternative approaches to the development missions of the school, the development of curricula systems, technological support systems, social systems, and school organizational patterns.[18]

---

[18] Also, see Ralph W. Taylor, Basic Principles of Curriculum and Instruction (Chicago: University of Chicago Press, 1950); Jerome Bruner, The Process of Education (Cambridge: Harvard University Press, 1961); John J. Goodlad and Robert Anderson, The Non-Graded Elementary School (New York: Harcourt, Brace, 1959); John Holt, How Children Fail (New York: Pitman, 1964); and Jonathan Kozol, Death at an Early Age (Boston: Houghton Mifflin, 1967).

During the seminars, Alternative Models for Elementary Education gives the intellectual structure whereas the others are representative of particular points of view with regard to schooling and school organization. It provides a rather comprehensive bibliographic guide to alternative missions of the school and alternative patterns for building curriculum, social systems, and technological support systems as well as organizing the personnel of the school. The students with the faculty counselor should develop a program of readings to acquaint them with the major theoretical positions identified. Many faculties will wish to develop readings dealing with major positions in educational philosophy as well. This phase should be coordinated also with the "world of the learner" aspect of the teacher-scholar component to acquaint candidates with structures for studying and responding to individual differences.

Phase Two: Phase two of this component begins after the teaching strategies subcomponent of the interactive teaching component. The study of teaching strategies provides the conceptual knowledge of nine approaches to curricula and instructional strategies and the possession of the ability to carry them out in the classroom. This provides essential knowledge and skill for the teacher. If a person is to be a shaper of a school, he must have alternative approaches and know he is able to carry out a reasonable number of them. Otherwise, his discussion of curriculum and instruction will seem empty and artificial.

A seminar should then deal with the question of curriculum modes and how they can be organized.[19] The candidates, should also, working in the school as a center of inquiry, study the use of support systems for schools.

Phase Three: The study of strategies in the curriculum areas. In this phase each teacher must bring himself to competence in the curricula and instructional strategies in one curriculum area. He needs to be acquainted with the major systems which are used in this areas to approach instruction. Because these change, the component needs to be redeveloped continuously by the faculty so it will include the current developments in the field. A support system of instructional material in the area should be provided so that the trainees can analyse them and learn to apply them to children.

In the appendix to this chapter on strategies in the curriculum areas, there are two papers representing the type of document needed to help

---

[19] Ibid., GPO: pp. 85-109; ED: pp. 78-102.

candidates orient themselves to the field of their specialty.[20] These explore a number of approaches to the social studies and provide a map of readings and guide to materials in each field. Candidates should study the alternatives in each field and, in tutorial and small-group teaching, begin to try out the approaches and study their effects. These illustrate only the social studies field. The faculty should develop materials for each of the curriculum specialties. In the early childhood field, for example, the teacher candidates need to study the different approaches defined by Bereiter and Englemann, Robinson and Spodek, Montessori, and others--they should not simply study one doctrine.

Phase Four: The Experimental Units. The inquiry group should develop and carry out a unit of activity in the specialty of the members with a complete curriculum plan, support systems, and experimental design.

Phase Five: Each inquiry group should be assigned to a specific phase of activities in the remedial-enrichment school and should carry this work out with assistance from the faculty counselor. Candidates should plan all phases of the activity and offer the component of education for the children. Hence, an inquiry group made up of reading specialists will operate a reading activity; the science specialists, a science activity; and so on.

Phase Six: The feedback teams are apprenticed to the school as a center of inquiry to study institution-building activity and receive coaching from the staff of the school on the problems of shaping the school.

Administration of the Component. While there are a number of possible patterns for administering the component, a straightforward one involves the assignment of a faculty counselor to each inquiry group throughout the component. Since the component stretches throughout the program, this relationship can provide continuity for the group by providing a core of shared experiences. The group can be welded, through its common experimental activities, into the reference group that is so essential to the teacher-innovator component. Other faculty members, assisted by advanced students working as interns, can staff the simulated school and keep up-to-date the bibliography and illustrations of alternative approaches to curriculum specialties. As the inquiry group moves into the phases that involve experimental teaching, the faculty-counselor can continue to work with the group, helping it to design and carry out its experiments. During his long relationship with the group, the faculty counselor can apply the differential training model in the manner described in the interactive teaching component.[21]

---

[20]Also see Bruce R. Joyce, Social Studies Extension Service (Chicago: Science Research Associates, 1968), and Bryan Massiales and Benjamin Cox, editors, Social Studies in the United States (New York: Harcourt, Brace, 1967).

[21]Ibid., GPO: pp. 220-24; ED: pp. 205-09.

Evaluation and Feedback. The simulated school provides an environment in which performance is easily observed. The development and carrying out of the experimental units and the work in the remedial-enrichment school is, assuming the use of techniques for observing and analyzing teaching described in chapter 10, also easy to observe.

Both evaluation and feedback should be carried on in terms of solutions to institution-building problems rather than to the assimilation of content per se. It should, also, be informal and cooperative, although based on the analysis of performance.

Since institution-building is a group activity, the group should be the unit for most analysis of competence, whereas the individual and the feedback was the unit in the interactive teaching component.[22]

The Interactive Teacher Component

There are four subcomponents of the interactive teacher component. The first of these deals with instructional decisionmaking; the second, with mastering nine teaching strategies and the ability to create and test one's own teaching strategy; the third, with the flexibility training program; and the fourth, with a program designed to teach the young teacher how to shape the social situation in the classroom. This is the most complex component in this program, and the reader is referred to the Final Report for most details. However, the following describes the second subcomponent which deals with the mastery of the teaching strategies.

To the person learning to teach, this subcomponent probably will be the most vivid, and to the faculty, it should serve as a unifying element. On its success depends the real utility of the other subcomponents in the area of interactive teaching. It serves to link the intellectual aspects of teaching (the making of decisions, the shaping of subject matter, and the selecting of technology) with the clinical aspects of teaching (the touching of minds and emotions with the learner, the creation of the social system of the classroom, and the manifestations of flexibility and sensitivity).

For six years we have engaged in a developmental effort to develop a basis for a subcomponent which would bridge theory and practice so that the work of the teacher would be comprehensible in terms of ideas about teaching and learning. If it can be achieved, the school can be built as a center of inquiry into teaching and learning as well as a place in which school is kept.

---

[22] Ibid., GPO: pp. 295-306; ED: pp. 278-89.

To attempt to relate educational theories very closely to the operational practices that occur when a teacher and a learner are engaged is to transform educational theory quite radically. Except in the most abstract minds, theories of education have seemed to float free of the world of the school and the teacher and the child. In this subcomponent a serious attempt is made to make educational theories explicitly operational in terms of things that teachers and pupils do and to provide the teacher with the capacity to generate rational positions about teaching and learning which he can operationalize himself.

The Processes. This subcomponent focuses directly on what we shall call strategies for teaching. A teaching strategy is simply a thoughtful teaching operation in which the teacher does what he does because he believes it will have a positive effect on the learner. At its most sophisticated, a teaching strategy is an elaborated theoretical position that has come into reality as a teacher and learner have interacted. The process of teaching with strategy involves the development of hypothetical positions about the results of various forms of teacher-pupil interaction and the translation of these into teacher behaviors. For example, A. A. Neill, the headmaster of the famous Summerhill School, has a carefully thought out theoretical position on education. Neill has translated this position into action. He has built a school, trained a faculty, and organized students in such a way that his theoretical position has been brought into reality. As they work with students at Summerhill, the faculty members are aware of what they are doing and guide their behavior by well thought-out guidelines about the relationships between teacher behavior and learner behavior. Neill is an example of a teacher who has developed the ultimate skill in teaching strategy because he is able to generate theoretical positions and to operationalise them with children.[23]

Another person who has done this is B. F. Skinner. Skinner has developed and tested thories of operant conditioning and has translated these into the devices for learning which have become known as programed instruction. Skinner has a theoretical position that he also has turned into teaching devices and rules for teacher behavior that actually operate effectively with children.[24]

Not everyone accepts Neill's position on education nor does everyone accept Skinner's position. Both, however, have developed and used theoretically anchored teaching strategies.

We take the position that our teacher-innovator should be

---

[23] A. S. Neill, Summerhill (New York: Hart, 1960).

[24] B. F. Skinner, Technology of Teaching (New York: Appleton-Century-Crofts, 1968).

able to comprehend the models of these and many other theorists and should be able to carry out a wide range of strategies--to operationalize a variety of theoretical positions about education.

For the teacher this involves the process of mastering a repertoire of teaching behaviors that can be used for many ends.

While we are not certain what combination of events makes a good lesson or what combination of qualities makes a good teacher, the potentially better teacher is one who is able to plan and control his professional behavior--to teach many kinds of lessons, to reach many diverse learners, to create different social climates, and to adopt a wide range of teaching strategies of changing conditions. The reason the teacher must possess a range of teaching strategies is simply because different styles of teaching behavior are useful for different educational purposes, and every teacher seeks educational ends that demand more than one way of teaching. Sometimes students are unruly, and the teacher must shift his strategies to develop a cooperative social system. Sometimes students are bold thinkers and challenge the teacher to lead them in the exploration of content that interests them. Other students are conforming thinkers, reluctant to venture original ideas. They need to be induced to stop seeking "right" answers and develop an intellectual autonomy. There are learners lacking important basic skills who need direction and protection until they can acquire them. Each student is a unique combination of needs and abilities.

In each class or inquiry group is a unique combination of individuals. The teacher learns to recognize differences between students and groups of students and adjust his strategy and style of teaching as he turns from one to the other.

A teacher who cannot vary his method or style is seriously limited. He needs to be able to select from a repertoire of tactics that will lead to different objectives and induce different students to learn.[25]

It is important then that the teacher master a basic repertoire of moves which he can use to carry out a variety of teaching strategies. He also needs to learn a representative sample of theoretical positions about education and how to translate these into teaching strategies.

In this subcomponent provision is made for the teacher to master four basic teaching maneuvers that are the beginning of a repertory which will enable the teacher to manifest quite a variety of teaching strategies. Provision is also made for the teacher to master nine basic strategies which represent widely known theoretical models of education. Further, provision is made for the teacher to create and carry out strategies of his own making and to test these out gathering information about their effectiveness.

---

[25] Joyce and Harootunian, op. cit., pp. 94-95.

The Maneuvers of Teaching. When he is interacting with his students, the teacher controls his behavior to induce student reactions that will lead to learning. The teacher maneuvers, in a sense, to elicit from the student those behaviors that will lead to the achievement of the educational objectives the teacher has selected. If the teacher wishes the student to become a better thinker--for example, to be able to frame hypotheses and test them--then he asks questions, poses problems, or makes provocative statements in the hope that the student will be caught up in a problem and induced to develop and test hypotheses (and subsequently led to reflect upon and to improve his ability to do so).

The target of every teacher behavior, then, is a responsive student behavior. The wider the range of teaching maneuvers, the better the teacher's chance of bringing about more kinds of desirable learning from larger numbers of students. The goal of teacher education is to help the novice teacher widen his repertoire of maneuvers.

Teaching maneuvers very nearly run the entire gamut of human behavior. For example, teachers use gestures and facial expressions. They ask questions; they speak in soft voices or in stentorian tones; they carefully set the stage, feeding the students information and ideas and then asking questions that cast both into doubt.

Teachers also build maneuvers into teaching materials. They construct books that lead students step by step through difficult material. They develop exercises that induce new ways of thinking. They build materials that require the practice of skills and the use of information. They create elaborate games that simulate economic or political activity. The teacher uses himself in conjunction with teaching materials, combining his own words and personality with books, motion pictures, and other devices to create learning situations and elicit student responses he could not achieve without collaboration with technology.

How many teaching maneuvers are there? There are as many as imaginative teachers can create through the use of their own knowledge and the skills and products of technicians and publishers. It is a pity that the work of so many teachers and of so many teaching materials embodies such a narrow range of all the strategies possible. There is a tendency for teachers to find comfortable styles--a few maneuvers that seem to work for them--and then to settle into those styles, smoothing them out, but not expanding their repertoires. To prevent this, the teacher needs to become a student of teaching styles and maneuvers. He can analyze his own teaching and identify the kinds of maneuvers he employs habitually. One of the uses of the "Manual for Analyzing the Oral Communications of Teachers" in appendix A is to help teachers analyze their own verbal communication and expand their repertoires of comfortable maneuvers. Several universities are now carrying out extensive projects designed to help teachers analyze and expand their styles.[26] In addition, here are several

---

[26]For example, see the Project on Student Teaching at Temple University (Edmund Amidon, director) and the Microteaching Project at Stanford University (Dwight Allen and Robert Bush, co-directors).

publications that can help teachers identify the range of possible maneuvers.[27]

In the following pages we will discuss a number of classroom maneuvers that illustrate the broad spectrum of behaviors a teacher uses to effect student behavior. We have included maneuvers designed to bring about four kinds of student behavior, which by no means exhaust all of the possibilities. These maneuvers are:

1. Maneuvers to induce productive thinking. Productive thinking includes the ability to generate alternative hypotheses and problem solutions, to synthesize information and build generalizations and theories to explain it, and to create original stories and ideas. Every teacher needs a variety of tactics to stimulate productive thinking.
2. Maneuvers to induce mastery of content and achievement of skills. At times it is desirable to bring students to a certain level of performance--to teach them a skill, a body of information, or generalizations that explain information. Maneuvers for this include demonstrations, recitation, programed techniques, and tactics that structure material to maximize memory or skill development.
3. Maneuvers to induce self-direction. Self-direction is another common goal of instruction. Appropriate maneuvers include counseling, role playing, discussion, and other tactics which induce students to reflect on themselves and take responsibility for setting their own goals and procedures for learning.
4. Maneuvers to structure activity. Whenever an activity is difficult for students, or whenever students are uninterested or unruly, it may be desirable for the teacher to induce an organizational structure that enables learning to proceed. Some maneuvers accomplish this by initiating tight organizational procedures for the group. Others are aimed at increasing the students' interpersonal skills.

If a teacher can induce these four kinds of student behavior, he will be able to carry out a great many teaching strategies. One can think of maneuvers as a basic repertoire of tactics or as the elements of a basic teaching style. With these maneuvers he can begin to operate competently in the classroom. As he gains experience, he can develop more maneuvers for inducing these and other student behaviors, thereby increasing his capacity to reach larger numbers of students more effectively. The discussion that follows illustrates a few of the many behaviors a teacher can use. Experience will show that there are other kinds of desirable student behavior to be considered as well.

The maneuvers we will describe or illustrate will not be appropriate for every teacher. Each teacher must create the kinds of tactics he is

---

[27]See Norris M. Sanders, Classroom Questions: What Kinds? (New York: Harper & Row, 1966); James A. Smith, Setting Conditions for Creative Teaching in the Elementary School (Boston: Allyn & Bacon, 1966).

comfortable with and can implement in accord with his personality. However, the teacher need not feel that he is confined to a limited number of maneuvers. We have found that while teaching styles are indeed related to personality factors, many teachers can expand their repertoires dramatically if they will learn to analyze their teaching and make deliberate attempts to increase their range.[28]

As we shall see, the range of effects on student behavior is increased by the fact that the same maneuver can serve more than one purpose. A drill exercise, for example, designed to help students master information, may also organize the individual students's activity and initiate a working environment in the classroom. In the same vein a maneuver designed to increase a student's self-direction may also involve him in a project that leads to productive thinking.

The analysis of teaching maneuvers is complicated by the fact that nearly all teacher behaviors have an emotional as well as an intellectual impact on the student. When a teacher calls on a student, he may scare him if the student is unsure of his ability, or perhaps he may comfort and support the student by giving him attention and recognition. The effective or emotional dimensions of teaching are extremely important, and we need to consider the rewarding and punishing effects that maneuvers can have.[29]

Ways of producing these four basic teaching maneuvers are described more fully in the body of The Structure of Teaching.

The Nine Models of Teaching. In the appendix to this subcomponent nine models of teaching are described in considerable detail and reference is made to the theoretical positions from which the models are derived. The models include:

1. An inductive teaching strategy developed from the work of Hilda Taba.
2. A strategy for inducing the students to attain concepts derived from work by Jerome Bruner and his associates.
3. An inquiry training model developed from work of Richard Schuman who developed a training program to help children build scientific theories.
4. A cooperative inquiry model derived from the position of Herbert Thelen on the democratic process as it is applied to teaching.
5. A nondirective model developed from the work of psychologist Carl Rogers on ways of helping students to teach themselves.
6. A differential training model derived from work by David E. Hunt, which provides means of adjusting the strategies according to

---

[28] Joyce and Harootunian, op. cit., pp. 94-95.

[29] Ibid., p. 111.

personality characteristics of the students.

7. A teaching strategy derived from the analysis of a process.
8. A programed model developed from the research on operant conditioning conducted by B. F. Skinner and his followers.
9. A model developed from the work of Abraham Maslow dealing with the development of an integrated personality.

These nine models represent widely known theoretical positions on education. They do not exhaust all possibilities, but the subcomponent provides for the exposure of the teacher candidate to yet other positions which he can translate into going teaching strategies. Note the emphasis on introducing the candidate teachers to a variety of theoretical positions on teaching. We take the view that the teacher should not be taught that certain types of teaching are good for all occasions and should become the preferred strategies. Some teacher education programs emphasize nondirective or democratic methods to the exclusion of all other methods and have discouraged directive teaching. Other teacher education programs have emphasized directive teaching to the exclusion of other methods. Yet others emphasize particular approaches to education (as Montessori methods) or to specific ways of teaching certain subjects (as science). Our position is that the student should have available to him the best of the spectrum of educational theories and the ability to implement them in the classroom. Critical to this mastery is comprehension of theoretical positions and the clinical capacity to execute strategies derived from them.

The Behavioral Objectives of the Subcomponent. The behavioral objectives of the teaching strategies subcomponent occur in four levels. The four levels are generally sequential in that it is most likely that a student will progress through the four levels more or less in order, but as usual in this program the suggested sequence can be altered greatly. Even so, it is best to explain the subcomponent to each inquiry group in terms of sequential levels because the explanation is much more compact and reasonable that way.

Objective One (Level One): The teacher discriminates the four basic teaching maneuvers and their uses:

1. Maneuvers to induce productive thinking.
2. Maneuvers to induce mastery of content and achievement of skills.
3. Maneuvers to induce self-direction.
4. Maneuvers to structure activities.

The teacher should be able to explain a theoretical position underlying the use of each of the maneuvers. He should also be able to discriminate the maneuvers in episodes of behavior produced by teachers and to examine learner reaction to them.

Objective Two (Level One): The teacher can demonstrate an example of each of the four teaching maneuvers. He can create a lesson or plan for an encounter with children so that it will include the use of each one of the four maneuvers and can execute the maneuver when teaching chil-

dren so that it is distinguishable by his fellow candidates and faculty counselors.

This level of achievement is essential to the development of the teacher. A teacher who cannot accomplish these two objectives or equivalent ones is in no position to teach except in the most limited sense of the term.

Objective Three (Level Two): The teacher candidate can identify the nine teaching models described in the appendix to this chapter and the theoretical positions that underlie the models. This means that he has knowledge of the theoretical positions of Taba, Thelen, Rogers, Schuman, Hunt, Maslow, etc. Also, when he observes teachers working with students he is able to distinguish the model or strategy that is being used.

Objective Four (Level Two): The teacher candidate can build and execute lessons utilizing each of the nine strategies. This means that the teacher can prepare objectives within a curriculum area, select an appropriate model, develop a lesson for a series of lessons around it, and execute it in the classroom with appropriate adjustments to the particular learners.

This is another critical objective in this program. While it is probably not essential that all nine teaching strategies be mastered, a reasonable repertoire needs to be established consisting of these or their equivalent. All do not need to have to be produced magnificently, but they should be recognizable and reasonably smooth. Since it is possible to build instructional materials around several of the models, it is possible for the teacher candidate to satisfy this requirement partially through the creation of instructional materials. For example, strategy number 8 is a "programed" strategy derived from Skinner's work in operant conditioning. This provides a paradigm around which programed instructional materials can be developed. Similarly, the "advance organizer" model can be used for a television presentation or for written materials which are presented to students. Some of the other models require face-to-face teaching (as, for example, the cooperative inquiry and the nondirective models).

Objective Five (Level Three): Within at least one curriculum area (his specialty), the teacher identifies a basic repertoire of teaching strategies and learns to execute them while working with children.

The teaching strategies may be derived from models like ones included in the appendix which have been developed specifically within the curriculum area (as, for example, the area of reading or mathematics instruction). To accomplish this objective the teacher candidate needs to acquire a knowledge of the major systems for organizing instruction within the curriculum areas concerned, identify the teaching strategies which are recommended or which are appropriate within that area, and then he needs to learn how to put those ideas into practice.

It is important for the teacher to learn a balance range of strategies which are developed from the different positions toward learning that are taken by theoreticians and practitioners within the curriculum areas. For example, in the social studies area some authorities favor the democratic process model which is similar to the one contained in the appendix directive to this chapter; others prefer the directive model. Recently, we have seen strategies developed from process analysis brought into the social studies field, in the form of simulation or legislation simulations. Yet others have developed teaching strategies which are derived directly from the subject disciplines. A teacher who is developing control within a curriculum area should try the strategies recommended by the different schools of thought so that he can judge for himself what it is like to work with children from those positions and because he needs a repertoire that will enable him to seek a wide range of objectives with many different learners.

Objective Six (Level Three): The teacher will learn to carry out teaching strategies that utilize contemporary technical support systems.

The specific nature of the strategies and the technologies will depend on the curricular specialties of the teacher candidate and the ages of the children with whom he works. For a language teacher, the language laboratory is an example of a technical mode. In the social studies, televised programs are an example.

Objective Seven (Level Four): The teacher candidate develops and tests a model and strategy of his own or adapts one of the general models or one of the subject-area-specific models which he has learned in this component.

The Rationale of the Subcomponent. The first phase of the subcomponent is a modification of the previous work by Amidon, Flanders, Allen, Medley and Mitzel, Joyce, and others in which they have demonstrated that teachers can learn to analyze specific small behaviors in teaching and to master the relatively small units of behavior which Joyce and Harootunian have called maneuvers. The general paradigm operates as follows: The teacher learns to discriminate the desired behaviors, attempts to produce them, obtains feedback with his peers by examining episodes which have been recorded on audio or video tape, and, with coaching, repeatedly practices the behaviors until they are mastered.

While it might be possible to develop the entire subcomponent in this way (teaching the teacher to discriminate relatively small behaviors and then building them up into a comprehensive whole), the course that we have chosen is to follow this practice only until the teacher has developed a limited basic repertoire consisting of the four maneuvers identified previously. From this point, he moves to larger and more meaningful units of teaching behavior which have been developed from major theoretical positions on learning. The inquiry group, as it studies these major positions and attempts to produce the strategies that have been derived from them, gives itself a rather thorough course in educational psychology and

learns to operationalize psychology in the classroom. Teaching needs to be a purposeful activity which is essentially the continuous testing of hypotheses about learning. If we concentrate only on small units of teaching behaviors that can be built up into meaningful strategies, the focus would be on relatively meaningless bits. However, when the focus is on strategies which are based on well thought-through and researched stances on learning and teaching, the meaningful unit becomes the focus of the program.

The subcomponent is also organized on the assumption that the rationalizations of teaching should consist partly of general models of learning and partly of models which are derived from the particular curriculum areas. Hence, after the general models have been mastered, the subcomponent proceeds to explore models in a particular curriculum area. A curious circumstance develops in many areas as a consequence of this. Many of the theoretical writings about instruction in the curriculum areas have been stronger with respect to the disciplines than with respect to the models of learning. Many of the products of the academic reform movement are elegant with respect to subject matter, but have almost no coherent teaching strategy. Other products consist simply of one expository unit after another. A few products, of course, have clear-cut, well articulated strategies. The teacher often has to transform materials so as to teach concepts for the academic disciplines by applying general learning models to them or creating more effective models himself.

The Means of the Subcomponent. The conduct of the subcomponent will vary somewhat depending on whether it is taught as a whole or is divided into several sections that occur at different points in the education of the teacher. The phases of the component, for example, could follow one another straight through an academic year and then lead right into internship or participation in the school as a center of inquiry. However, it could also be divided so that the mastery of the maneuvers and the introduction of the models could occur during one year, the study of the strategies within a particular curriculum area might follow during another year, and then the development of models and the use of strategies developed by the student himself might occur in yet another point in time.

However the component is divided, it begins with the organization of the inquiry group and the explanation to it of the behavioral objectives and the phases of the component which have been prepared beforehand. Then, as the group proceeds, it will no doubt transform both the objectives and the means in various ways. There are many advantages to keeping an inquiry group together throughout the entire component. For a group that learns the basic maneuvers, learns about the nine basic models of teaching, masters them with children, proceeds to the study of teaching strategies within the curriculum areas specialities, and finally moves into a school, developing and testing its own teaching strategies can be a very rich experience. The activity can provide the substantive basis for relationships among the group of students who is becoming a reference group with respect to innovation.

The means are here described in terms of phases that are based on each of the four levels of behavioral objectives.

Phase One, Learning the Basic Maneuvers of Teaching: The objectives of this phase are identifed previously to discriminate and learn to execute four basic teaching maneuvers. The component should begin with the reading of The Structure of Teaching, especially chapter 3, "Teaching with Strategy." This identifies and explains the four maneuvers in some detail and provides a variety of examples for carrying them out.

The inquiry group (probably working in "feedback teams") should then set about the mastery of the basic maneuvers. Members should plan lessons which employ those maneuvers, teach the lessons to each other and to children, tape-record and videotape their performance, analyze their behavior, and coach one another with the assistance of the faculty members. This process should continue until all members of the group have mastered the models satisfactorily. More than one maneuver can be engaged in during any one encounter with a group of students, but care should be taken that each new teacher masters it in such a way that it can be a prominent part of an important phase of a lesson or learning activity.

To identify the maneuvers in taped and video taped episodes, the groups will find it useful to use the systems of analysing teaching that they are mastering during the research on teaching phase of the teacher-scholar component. Both the Gallagher-Aschner and the Joyce-Harootunian systems are useful for identifying the maneuvers to induce productive thinking and the maneuvers to produce achievement. The Flanders system and the Joyce-Harootunian systems are useful for analyzing and improving maneuvers relating to the structuring activities and inducing students to structure activities for themselves. As will be noted in the organizational plans, the subcomponents are correlated to make that possible. The early phases of research on teaching should come no later than simultaneously with the early phases of work with the strategies of teaching.

Phase Two, Learning Nine Basic Strategies of Teaching: In phase 2 the third and fourth objectives above are to be achieved. This involves learning the nine theoretical positions on teaching and learning from which the nine strategies have been derived and mastering the strategies as the basic repertoire of each teacher. The organization of the phase could take several forms. An inquiry group could simply decide which models it prefers to start with and then work through the models one by one. Or, each feedback group can do the same. It would also be possible to establish nine microteaching laboratories, one for each model, and the students could study individually with the other members of their feedback team serving as coaches. There are many advantages to the first course of action. It gives an opportunity for an inquiry group to explore fully the theoretical underpinnings of each of the positions on learning and to examine the alternative ways that each position can be worked out. For example, the "concept-attainment" model is taken from some fairly sophisticated psychological research and is worth some substantial study. As the candi-

dates learn the model, as a group, with 10 or 12 of them working together, each one building lessons around the teaching strategy, the richness of the strategy will become apparent as will its wide applicability. The faculty member can help the students explore the ways that it can be applied to a wide variety of subject matters and how it can be shaped in a variety of forms.

The same is true of the other models, for strategies have been selected which are extremely versatile and if they are explored fully, they become much more than nine versatile models of teaching. Three or four basic variations will emerge from each making a repertoire that actually will consist of 30 or 35 workable teaching strategies.

Each candidate should persist in the mastery of the models until the other members of his feedback group and the faculty counselor are satisfied with his level of performance.

To identify fully the substance of this phase of the component, it is necessary to read the descriptions of the models in the appendix to this chapter on the teaching strategies subcomponent.

Phase Three, Teaching Strategies Within a Curriculum Area: In the curriculum section of the institution-building (chapter 11-B) component and the instructional decisionmaking section of the interactive teaching component (chapter 10-A) the teacher candidates learn the alternative patterns for curriculum and instruction within one traditional curriculum area of the school. Stress is placed on his mastering alternative systems for conceptualizing and organizing instruction within the curriculum areas. It is expected that each teacher will specialize in one curriculum area in order to provide him with an area of depth competence to which other learnings can be anchored and to provide him with an area of immediate competence once he is given the opportunity for responsibility within a school. In phase three of the present component, the intellectual work involved in understanding the alternative systems of approaching the curriculum areas is combined with the clinical competence derived from learning to rationalize and execute teaching strategies. The focus is on development of competence within the curriculum area. To make this possible, each feedback group needs to be given responsibility for teaching a group of children in a curriculum area such as reading, arithmetic, social studies, science, art, music, modern language. In the nursery school or kindergarten, the group may be responsible for a phase of activities that is to be its speciality. The phase may be analogous to one of the aforementioned curriculum areas (as it would be if one took the approach to preschool physical education that Bereiter and Englemann do). It may be a phase of activity such as language development which is related to the later work of the school, but which takes shape in the nursery school in a very different way from the later form. The feedback team then proceeds to develop a unity of activity that it carries out, setting the behavioral objects, selecting the learning model and deriving the teaching strategy from it, building the materials that are needed, carrying out out the activity, and testing hypotheses about learning. The team executes

the unit as a group although individuals may handle particular aspects of the work.

The faculty role in this phase of the component is particularly important for the experiences are lengthy and complex and are not easy to repeat. The activity needs to be as successful as possible during its first execution. A feedback team may get opportunities for several such activities, but it is a costly learning experience and one which cannot be prolonged unnecessarily. As a result, the faculty member wants to take care that the plans of the group are very adequate. The group needs to meet the children and to work with them in diagnostic settings before making its plans. The faculty member should be consulted frequently as to the adequacy of the plans before they are put into effect.

Phase Four, The Development and Execution of Original Models: In this phase the feedback team is assigned within the school as a center of inquiry or it is helping to operate the enrichment and remedial school. It has full responsibility for a group of youngsters and its charge is to shape a substantial segment of activity developing or adapting a model, creating the instructional materials, and carrying it out fully. The phase extends phase three. The group may select a technological mode of a particular kind or it might even be assigned to a technological mode within the enrichment school or the remedial school and have to adapt a strategy for that particular mode. While it does not take much space to describe this phase, it is as complex as the preceeding one, and the faculty members roles are again critical for the plans need to be tested against him and other experienced teachers to assure that they are reasonably adequate before teaching begins. Again the activity should be carried out as an experiment. The teaching strategy should be phrased as a hypothesis that certain teaching behaviors will have certain effects on the learners, and the hypothesis should be tested.

The Administration of the Subcomponent. The subcomponent requires faculty members who have mastered the maneuvers and models themselves and who continue to find opportunities to teach children and to sharpen their mastery. The subcomponent is difficult to administer because it is highly complex and much is left to the judgment of the faculty members and the process which develops within each inquiry group. It is an extensive subcomponent, taking a long period of time to complete, and each of its four phases are complex in themselves. The last three phases are exceedingly difficult.

The first and second phases require extensive taping and video taping. Filming of teaching and suitable space has to be made available.

The subcomponent has to be correlated carefully with the contact laboratory on which it depends. Table 5 illustrates the correlation.

As in so many of the subcomponents in the interactive teaching component, the availability of audio tape recorders, video tape recorders, and

Teaching strategies phase	Type of activity	Contact laboratory phase
Phase one	Learning basic maneuvers	Phase two (tutorial)
Phase two	Learning basic strategies	Phase two (tutorial)
Phase three	Unit experiment in curriculum area	Phase three (unit experiment)
Phase four	Unit experiment with own strategy	Phase four (remedial or enrichment school)

TABLE V

CORRELATION BETWEEN CONTACT LABORATORY AND TEACHING STRATEGIES SUBCOMPONENT

other devices for reproducing the episodes of teaching are critical. Again it seems that the only practical way to supply the human services to make those available is to employ the student teachers themselves as operators of the equipment and give them both the opportunity of learning from such participation as well as the availability of equipment that is self-operated.

Provision for Feedback and Differential Training. Feedback in this subcomponent is fairly automatic because of the nature of the learning activities. A teacher is constantly aware whether he has mastered the maneuvers or models and his goal is always before him. In the latter two phases, the faculty member has to take an extremely active role, particularly in the planning stages, and the research consultants have to work with the students to develop the systems for testing their hypothesis about teaching. The differential training model is very easy to administer. In the first case, as we have said immediately above, achievement is easy to measure and the learners' tasks can be closely matched to their achievement. (A person has or has not mastered a given model or maneuver and as a result of that fact does or does not continue to master it.) Modulating the structure of the first two phases to suit the cognitive orientation of the students is fairly easy. In the second two phases it is not so easy, and the faculty member is dependent almost entirely on his own judgment. If the student needs a great deal of structure, he has to provide it personally. The structure of the subcomponent itself, while it permits modulation of structure, has no built-in provision for it. It depends entirely on the maneuvers of the faculty member himself. The value orientations of the students, on the other hand, are very easy to accommodate. They can begin with the maneuvers and models that they prefer. For example, some will prefer nondirective teaching methods, and they can begin mastering nondirective teaching models rather than highly structured ones. The converse is also true. Feedback preference is also easy to accommodate, for the faculty can move in and out of the situation providing or withholding authority as the students seem to need it.

Evaluation. The evaluation of achievement is embedded in the methods as they have been described. Each feedback group monitors its members progress through the mastery of the maneuvers, the models, the development of models within the curriculum areas, and the creation of original teaching strategies. Because the creation and implementation of original teaching strategies is conducted as an experiment, the evaluation procedures have to be constructed in order to carry out the activities.

It should be stressed that achievement of the objectives of this subcomponent is essential to the success of the teacher education program. Only a very narrow tolerance of underachievement can be made. A student who does not develop the basic repertoire of teaching maneuvers and strategies will be an educational cripple.

The Teacher-Innovator and the Teacher-Scholar Components

The other two basic components, the teacher-innovator and the teacher-

scholar, are described in The Teacher-Innovator.[24] Each of these is characterized by its own strategy. The first attempts are to employ reference group theory to imbue the inquiry groups with a commitment to innovation. It also tries to help them to understand the problems of coping with the bureaucratic school organization to learn to generate institutional structures which are nonbureaucratic in nature. The teacher-scholar illustrates the techniques which need to be taught to the young teacher to help him analyze teaching and learning. (But by no means are all the possibilities included in the report.)

THE RELATION OF THE PROGRAM TO PROGRAMS OF GENERAL EDUCATION

No attempt has been made in this model to specify what should be entire undergraduate education of the teacher candidate in all subject fields. Our general position is that he should achieve depth in at least one subject field preferably in such a way that he comes to grips with the models of inquiry of that field and begins to learn what scholarship is and how it can be carried on. It is also our position that a great deal of the general education of the student should involve him in the study of humane issues. If we were pressed, we would agree with Hutchins that the primary purpose of the college education is to help the young person to engage in the great dialogue on the nature of the good life and our struggle to achieve it. However, we do not attempt in the report to cope with the questions of the student's general education, nor do we attempt to deal with many questions about the relationship of the teacher education program to the wider educational community that operates the public schools.

It is in implementation that the relationships between "general" and "professional" education should be reconciled. The points at which a teacher candidate is admitted to the school of education or begins his professional work is a matter of legitimate local concern rather than the proper function of a model such as this one. We have provided the rationale and means for one approach to the preparation of a certain kind of teacher. This approach could certainly be adapted to four-year undergraduate institutions, to fifth- and sixth-year programs, or to combinations of these. The professional components as we have described them are quite flexible, and while they need to be coordinated with each other there are many types of coordination available, and quite a bit of institutional variation could be tolerated before the program would be distorted.

The components vary in their state of completeness. Some of them are very nearly ready to implement (as, for example, the flexibility training program). Also, the procedures for constructing data banks to provide young teachers with feedback on the nature of their teaching

---

[24] Joyce, op. cit., GPO: pp. 347-466; ED: pp. 330-436.

styles is sufficiently well developed that they could be implemented at this point. Some further engineering work needs to be done on the simulated school and on the teaching strategies subcomponent, but sufficient developmental work is being completed, and enough testing has been done that it would be possible to begin to implement these at the present time.

It must be stressed that our position is not one of proselytization. We do not expect to see the The Teacher-Innovator Model as a dominating feature of very many teacher education programs. We do feel, however, that the complexion of the program and its structure should be of heuristic value to others who would construct models of teacher education, and we think that some of the developed work and some of the components and subcomponents have provided empirical results which should be useful in the cumulative inquiry into teacher education and also have resulted in developed products which should be of practical value in the education of teachers.

BIBLIOGRAPHY

Bruner, Jerome, The Process of Education (Cambridge: Harvard University Press, 1961).

Coleman, James, The Adolescent Society (Glencoe: The Free Press, 1961).

Goodlad, John J., and Robert Anderson, The Non-Graded Elementary School (New York: Harcourt, Brace, 1959).

Holt, John, How Children Fail (New York: Pitman, 1964).

Kozol, Jonathan, Death at an Early Age (Boston: Houghton Mifflin, 1967).

Joyce, Bruce R., Alternative Models for Elementary Education (Boston: Blaisdell, 1968).

---, Social Studies Extension Service (Chicago: Science Research Associates, 1968).

---, The Teacher-Innovator: A Program To Prepare Teachers (Washington, D.C.: Government Printing Office, 1969).

---, and Berj Harootunian, The Structure of Teaching (Chicago: Science Research Associates, 1967).

Massialias, Bryan, and Benjamin Cox, editors, Social Studies in the United States (New York: Harcourt, Brace, 1967).

Miles, Matthew B., Innovation in Education (New York: Teachers College Press, Teachers College, Columbia University, 1964).

Neill, A. S., Summerhill (New York: Hart, 1960).

Sanders, Norris M., Classroom Questions: What Kinds? (New York: Harper & Row, 1966).

Schaefer, Robert, The School as a Center of Inquiry (New York: Harper, 1967).

Skinner, B.F., Technology of Teaching (New York: Appleton-Century-Crofts, 1968). ED 018 996. EDRS Price: Not available from EDRS.

Smith, James A., Setting Conditions for Creative Teaching in the Elementary School (Boston: Allyn & Bacon, 1966).

Taylor, Ralph W., Basic Principles of Curriculum and Instruction (Chicago: University of Chicago Press, 1950).